

## Effect of Beta Vulgaris L Seed Forgiveness on Sowing Depth

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**Abstract:** The influence of planting depth on yield in the production of soup beets on saline soils in Karakalpakstan was investigated in this article. Germination of seeds sown at a depth of 3-4 cm, plant density, number of leaves, root weight, and days of vegetation before technical ripening are all preferable than alternative options, according to the results of this article's tests.

**Keywords:** seeds, beets, soil, mechanical composition, temperature, planting depth, duration, germination, number of leaves, number of plants, plant density, rootstock, weight, technical ripening, length of day

### Introduction

The beetroot (*Beta Vulgaris* L.) is a biennial plant in the *Beta* genus. Beetroot is one of the most valuable and therapeutic plants in every way, which implies that it is resistant to soil salinity and suited for growing in our salty soil conditions from an agronomic standpoint (Table 1) [5].

**(table 1) Boundary amount of chlorine salt in the layer where the roots of vegetable crops are located in chloride-sulfate and sulfate-chloride type soils in Uzbekistan.**

Crops	Chlorine, %
Beetroot	0,030-0,035
Cabbage	0,020-0,022
Radish	0,017-0,020
Potatoes, onions, salad spinach, dill	0,016-0,020
Melon	0,015-0,017
Carrots	0,013-0,015

In terms of the second argument, this vegetable helps to avoid anemia. Its pectin removes blockages and impurities from the body, preventing premature aging. It contains vitamin C, which helps to improve the immune system and fight sickness. Beetroots contain betaine, which is thought to be particularly healthy to the liver. Beetroot has even been shown to inhibit the growth of cancer cells in the human body.

Soup beet seeds are sown in three periods: spring, summer and late autumn (ninety) (Table 2) [6].

### Terms, schemes and norms of planting beet

№	Zones	Seed sowing dates			Planting schemes, see	Planting rate, kg / ha
		Spring	Summer	Autumn		
		Soup beets				
1	South	15.02.-1.03.	1-10.08	1-30.12	50x20x8	16 kg / ha in spring and summer
2	Central	1-15.03	5-15.06.	15.11-15.12		
3	North	25.03.-10.04.	1-10.06.	1.09.-10.12.		

Scientific research was conducted at the Department of Fruit, Vegetable and Horticulture of the Karakalpak Institute of Agriculture and Agrotechnology in 2018-2021. Field experiments were conducted on the experimental sites of the branch located in Kutankul OFI of Nukus district of the Republic of Karakalpakstan.

The hydrogeological and reclamation conditions of the area are unfavorable, which is due to the general slowness of groundwater flow. This is due to the weak slope of the delta, the composition of soil-forming rocks with high dust content, and the absence of a single flat permeable layer in the structure of the soil-earthen layer. Therefore, the order of depth of groundwater placement here is determined by the ratio of their inflow and outflow. The depth of groundwater in different parts of the Amudarya delta varies, depending on the level of development of the area, water supply and drainage [p.4–132].

**Table 3 Some agrochemical indicators of experimental soil soils (2021)**

Soil layer	Humus, %	Active, mg/kg			Rn
		Nitrogen	Phosphorus	Potassium	
		I on the field area			
Plowed layer (0-30 cm)	0,76	0,088	0,263	0,575	7,6
Panel layer lowland (31-50 cm)	0,69	0,072	0,172	0,420	7,2
		II on the field area			
Plowed layer (0-30 cm)	0,81	0,083	0,217	0,509	7,6
Panel layer lowland (31-50 cm)	0,77	0,076	0,181	0,411	7,3

In irrigated areas and the gray and high location between them corresponds to the period of irrigation during saline washing and vegetation. The soils of the experimental site were analyzed by taking soil samples along the plowing layer and the subsoil (0-30 cm) horizons (31-50 cm). The content of humus in the soils at the depth of the driving layer (0 - 30 cm) was 0.76%, and in the lower (30 - 52 cm) layer - 0.69%. Gross nitrogen was 0.088-0.072%, phosphorus 0.263-0.172%, and potassium 0.575-0.420%, respectively. Exchangeable potassium ranged from 211 to 186 mg / kg (Table 3).

**Relevance and necessity of research.** It is important to conduct scientific research in the saline soils of the Republic of Karakalpakstan in order to provide recommendations for the cultivation of cervitamin soup beets for the population. In connection with the introduction of beet in the Republic of Karakalpakstan, one of the urgent problems is to determine the optimal sowing dates and depth of sowing in the spring and summer seasons.

Experiments on scientific research were conducted in 2021 in the Republic of Karakalpakstan, in Nukus district, in the experimental fields of the Karakalpak Institute of Agriculture and Agrotechnology.

The purpose of the study is to assess the morphological, valuable economic characteristics of spring beets in the Republic of Karakalpakstan in the spring crop, as well as to determine the optimal sowing dates and planting depth.

**Object and methods of research.** In this experiment conducted in 2018-2021, we compared the effectiveness of applying planting depth when planting at 1,2,3,4 and 5 cm [1]. It became clear that the closer the seeds were to the surface during sowing, the faster they grew.

According to the results of experiments conducted for 3 years, when sowing seeds to a depth of 1 cm, the average 1 growing leaves after 5 days, the seeds begin to emerge after the 8th day of growth of oblique (massive) leaves, seeds sown at a depth of 2 cm begin to emerge on the 6th day, and seeds sown at a depth of 3–4 cm after 9 days, seeds sown at a depth of 3–4 cm after 6 days, and on the 10th day, seeds sown at a depth of 5 cm after 8 days. After 12 days, the seeds begin to germinate.

Depth of seed placement during sowing affects field germination germination of seeds. The highest (81.7–82.4%) fertility percentages were observed in seeds sown at depths of 3 cm and 4 cm, the lowest yields (71.3–67.7%) were observed in seeds sown at depths of 1 and 5 cm (Table 4).

**Table 4 Seed germination rate, germination in field conditions, plant growth density, foliage and average weight of beet roots at different seed depths (2018-2021)**

Depth of sowing seeds at the time of sowing	The number of days from sowing to germination		Field fertility of seeds, %	Plant growth density, thous. pieces./ga		Number of leaves, pieces / plant.	Average weight Of root fruit, g	From germination to technical ripening кунтава
	10%	75%		Before merging	After merging			
1 cm	5	8	71,1	498,6	181,7	9,3	104	114
2 cm	6	9	78,3	541,8	194,2	9,6	122	113
3 cm	6	10	84,5	581,4	197,9	11,2	129	112
4 cm	6	10	82,8	575,8	197,1	10,9	127	112
5 cm	8	12	69,8	471,4	178,6	9,0	98	115

The higher the percentage of field germination of seeds, the more seedlings per unit area of germination. In this case, the maximum planting depth was 3-4 cm, and the lowest was 5 cm. After combining the germinated plants with seeds sown at a depth of 3-4 cm, it was found that the density of the number of plants was the same, compared to the seeds sown at a depth of 1 and 5 cm.

Seed depth also affected leaf germination, growth rate, and plant yield. Seeds planted very close to the surface (1 cm) and very deep (5 cm) were found to have poor leaf growth, technical ripening 2-3 days late, and root formation and low average weight. Seeds sown at a depth of 3–4 cm averaged 22.4–24.6% of root weight relative to 1 cm depth, and 23.5–28.7% at 5 cm.

**Conclusion.** Due to the high mechanical strength and salinity of the soil in Karakalpakstan, it is difficult for deep-sown seeds to grow on the surface, and on the one hand, the effect of salinity when planted close to the surface has also been shown to have an effect. During our study, it was observed that the best performance was given to seeds sown at a depth of 3-4 cm.

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